

ASSIGNMENT 2

Textbook Assignment: "Metals and Plastics," chapter 3, and "Power Saws and Drilling Machines," chapter 4.

IN ITEMS 2-1 THROUGH 2-3, SELECT FROM COLUMN B THE BEHAVIOR OF THE METAL THAT IS MADE POSSIBLE BY THE PROPERTY IN COLUMN A.

<u>A. PROPERTY</u>	<u>B. BEHAVIOR</u>
2-1. Ductility	1. Resists deformation when a load is applied
2-2. Tensile strength	
2-3. Toughness	2. Can be rolled or hammered into sheets
	3. Can be drawn out or pulled into wire form
	4. Resists shock and stress
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2-4. High fatigue resistance is desirable in a material that is subjected to	
	1. abrasion
	2. repetition of stress
	3. corrosive substances
	4. high temperatures
2-5. The ease with which a metal may be planed and shaped is best described by what term?	
	1. Malleability
	2. Plasticity
	3. Ductility
	4. Machinability

2-6. The heat resistance of a metal is indicated by it's ability to

1. conduct heat
2. withstand stress at high temperatures
3. maintain a temperature that differs from the surrounding temperature
4. maintain constant dimensions under wide variations in temperature

2-7. To make cast iron, you should melt together which of the following materials?

1. Steel and iron ore
2. Iron ore and pig iron
3. Pig iron and scrap iron
4. Scrap iron and steel

2-8. Strength and high resistance to saltwater corrosion make which of the following metals best for use on board ships?

1. Aluminum
2. Copper
3. Bronze
4. Copper-nickel

2-9. K-Monel is made harder and stronger than other grades of Monel by the addition of what element?

1. Aluminum
2. Vanadium
3. Chromium
4. Molybdenum

2-10. Valves for high-temperature, high-pressure piping systems are made from which of the following metals?

1. Tungsten steel
2. Bronze
3. Copper
4. Carbon-molybdenum steel

- 2-11. Stainless steels contain which of the following metals:
1. Molybdenum
 2. Chromium
 3. Tungsten
 4. Vanadium
- 2-12. High carbon steel is commonly used for which of the following applications?
1. Ship framing
 2. Ship plating
 3. Cutting tools
 4. Electric wiring
- 2-13. Electrical wiring on board ship is normally made from which of the following materials?
1. Brass
 2. Tin
 3. Copper
 4. Zinc
- 2-14. Which of the following metals has the greatest weight per unit volume?
1. Bronze
 2. Cast iron
 3. Lead
 4. Copper-nickel alloy
- 2-15. A 4- or 5-digit SAP, number is used to identify what type of steel(s)?
1. Plain
 2. Alloy
 3. Plain and alloy
- 2-16. A free cutting steel with the classification SAE 1115 has approximately what percentage of alloying elements?
1. 1% manganese and 0.15% carbon
 2. 1% phosphorus, 1% sulfur, and 5% carbon
 3. 11% chromium and 5% nickel
 4. 11% phosphorus and 15% chromium
- 2-17. The SAE designator 1050 identifies what steel?
1. Carbon-molybdenum
 2. Nickel
 3. Carbon
 4. Copper-nickel
- Questions 2-18 and 2-19 refer to the aluminum alloy bearing the Aluminum Association designation 5052-H16.
- 2-18. The number 5052 identifies what major alloy?
1. Magnesium
 2. Silicon
 3. Manganese
 4. Copper
- 2-19. The number H16 identifies what characteristics of the aluminum's temper?
1. Strain hardened, then partially annealed and 1/4 hard
 2. Strain hardened only and 3/4 hard
 3. Strain hardened, then stabilized and 1/2 hard
 4. Artificially aged only and 3/4 hard
- 2-20. What marking designation in the Aluminum Association Marking System identifies an aluminum that is more than 99% pure with no special control over individual impurities?
1. 1075
 2. 1999
 3. 2030
 4. 3056
- 2-21. Thin copper wire is identified by what marking method?
1. Continuous identification marking
 2. Spot symbols
 3. Peripheral symbols
 4. Tagging

- 2-22. What information is shown on metals marked with the continuous identification marking system?
1. The producer's name or registered trademark and commercial designation of the steel
 2. The name and trademark of the producer who finished the steel before it was marketed
 3. The military standards designation and federal government job order number
 4. The U.S. Bureau of Standards quality control number and SAE designation
- 2-23. In a spark test, you should use medium pressure against the grinding wheel because hard pressure will cause what effect in the spark stream?
1. It will increase the temperature of the spark stream and the burst
 2. It will cause the spark stream to be diminished or eliminated
 3. It will cause the color of the spark stream to change
 4. It will decrease the number of forks
- 2-24. Which of the following steels give off tiny blocks of brilliant white light?
1. Nickel alloy
 2. High carbon
 3. Molybdenum
 4. Silicon alloy
- 2-25. Which of the following metals CANNOT be identified by a spark test?
1. Cast iron
 2. Stainless steel
 3. Lead
 4. Wrought iron
- 2-26. When nitric acid placed on a metal produces a slow reaction and a pale green color, the metal probably contains what element?
1. Iron
 2. Copper
 3. Aluminum
 4. Nickel
- 2-27. No reaction to a acid test indicates what type of steel?
1. Molybdenum
 2. Monel
 3. Stainless
 4. Nickel
- 2-28. Thermoplastics become hard and brittle when heated.
1. True
 2. False
- 2-29. When you saw plastics, why should you NOT feed the work into the saw too fast?
1. You may bum the work because plastics do not take away the heat produced by sawing
 2. You may make an error because plastic can be sawed easily and quickly
 3. The saw may become gummy with plastic chips
 4. The saw may be broken because some plastics are tough
- 2-30. Most plastics contain which of the following basic elements?
1. Sodium chloride
 2. Carbon
 3. Aluminum
 4. Silicon

2-31. Which of the following practices is likely to cause a power hacksaw blade to break?

1. Applying coolant directly to the blade rather than to the work
2. Failing to align the cutting mark on the work with the blade
3. Starting the machine with the blade touching the work
4. Using a coarse blade to cut cast iron

2-32. On a power hacksaw, you should cut annealed high-carbon steel with what type of blade?

1. Coarse
2. Regular
3. Medium
4. Fine

2-33. You are using a power hacksaw and cutting through a hard spot in the work. The feed is automatically controlled by what type of feed mechanism?

1. Hydraulic only
2. Gravity only
3. Hydraulic or gravity
4. Mechanical

2-34. When a power hacksaw is used to cut thin steel sheet, what minimum number of teeth must be kept in contact with the work?

1. 8
2. 2
3. 10
4. 4

2-35. Which of the following materials is cut on a power hacksaw without the use of a coolant?

1. Mild steel
2. Carbon steel
3. Cast iron
4. Brass

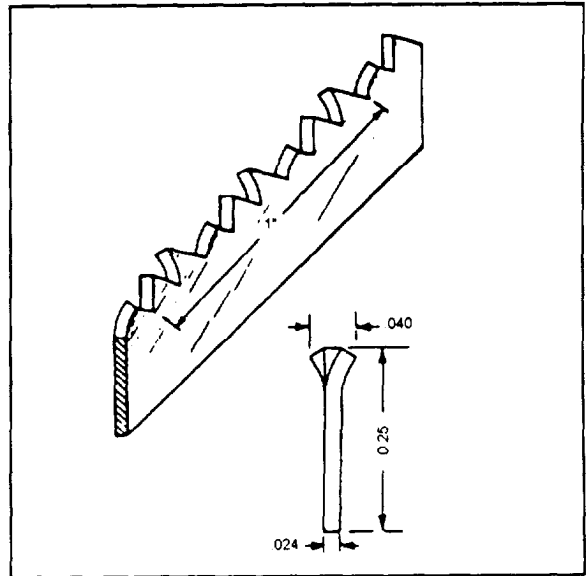


Figure 2A

IN ANSWERING QUESTIONS 2-36 THROUGH 2-39 REFER TO FIGURE 2A.

2-36. What is the pitch of the saw segment?

1. 7
2. 8
3. 9
4. 10

2-37. What is the width of the saw segment?

1. 0.024 in.
2. 0.040 in.
3. 0.250 in.
4. 1.000 in.

2-38. What is the gauge of the saw segment?

1. 0.008 in.
2. 0.016 in.
3. 0.024 in.
4. 0.040 in.

2-39. What is the set of the teeth of the saw segment?

1. 0.008 in.
2. 0.020 in.
3. 0.032 in.
4. 0.040 in.

- 2-40. What will the continuous feed cutoff saw do automatically as it completes each cut?
1. Raise the saw head only
 2. Stop the drive motor only
 3. Stop the drive motor and start the coolant motor only
 4. Stop the drive motor, start the coolant motor, and raise the saw head
- 2-41. What saw band set pattern is used to cut metal pipes?
1. Raker
 2. Straight
 3. Wave
 4. Curve
- 2-42. The upper movable band guide of a bandsaw should clear the workpiece by what maximum distance?
1. 1 in.
 2. 2 in.
 3. 3/8 in.
 4. 1/2 in.
- 2-43. The abrasive material on a polishing band is carried on what type of backing?
1. Treated paper
 2. Fabric
 3. Steel
 4. Rubber
- 2-44. When you are cutting on a bandsaw, inadequate feed pressure causes what problem?
1. It breaks the teeth of the saw band
 2. It dulls the saw band
 3. It snags the saw band
 4. It binds the saw band in the work
- 2-45. Manual work feed on a bandsaw is generally used only on materials up to what thickness?
1. 1 in.
 2. 1 1/2 in.
 3. 1/2 in.
 4. 1/4 in.
- 2-46. The gauge of the saw band that can be used with a particular band tool machine is limited by what factor?
1. The type of feed
 2. The size of the band wheels
 3. The type of band guide
 4. The range of band speeds available
- 2-47. The quality of work produced with a metal-cutting bandsaw is limited by which of the following factors?
1. The band speed
 2. The feed pressure
 3. The band type
 4. All of the above
- 2-48. When you place a saw blade in the jaws of a butt welder, the teeth should face in what direction?
1. Away from the welder
 2. Toward the welder
 3. Away from the jaws
 4. Toward the jaws
- 2-49. The use of a butt welder is required for what type of cut?
1. Inside
 2. Straight
 3. Angular
 4. Disk
- 2-50. To determine the correct length of a replacement band on a two-wheel bandsaw, you should take what measurements?
1. Twice the circumference of one wheel plus the distance between wheel centers
 2. Twice the distance between wheel centers plus the circumference of one wheel
 3. Twice the sum of the distance between wheel centers plus the circumference of two wheels
 4. Three times the distance between wheel centers plus the circumference of one wheel

- 2-51. What step follows the welding and grinding of a spliced saw band?
1. Annealing
 2. Polishing
 3. Quenching
 4. Installing
- 2-52. Improper tracking of a newly installed saw band is corrected by making what adjustment?
1. Band tension
 2. Band guides
 3. Backup bearings
 4. Wheel tilt control
- 2-53. After replacing the blade on a bandsaw, you should start sawing using what amount of tension, if any?
1. Heavy
 2. Moderate
 3. Light
 4. None
- 2-54. Drilling holes adjacent to square corners in a layout will allow you to use what type of bandsaw blade?
1. Wider
 2. Narrower
 3. Thinner
 4. Smaller
- 2-55. The worktable only moves vertically on what type of drill press?
1. General purpose
 2. Heavy duty
 3. Sensitive
 4. Radial
- 2-56. A general purpose drill press has what type of taper socket to hold drill bits?
1. Jarno
 2. Pipe
 3. Morse
 4. Brown & Sharpe
- 2-57. To drill a hole on a heavy-duty drill press, you position the workpiece; but on a radial drill press, you position the drilling head.
1. True
 2. False
- 2-58. A sensitive drill press is particularly useful for what type of work?
1. Work requiring many holes to be drilled in a large piece of metal
 2. Large castings requiring holddown clamps during drilling
 3. Work requiring the operator to rely on a sense or touch to determine how the drill is cutting
 4. Work requiring high-speed drilling in which vibrations are not harmful
- 2-59. What part of a twist drill enables you to remove it from the socket?
1. Dead center
 2. Web
 3. Shank
 4. Tang
- 2-60. What separates the flutes of a twist drill?
1. The point
 2. The web
 3. The shank
 4. the body
- 2-61. You are using a twist drill with a cutting speed of 88 fpm to drill a 1/2-inch hole. What is the approximate speed of the drill?
1. 90 rpm
 2. 200 rpm
 3. 670 rpm
 4. 750 rpm

- 2-62. When you cut both alloy steel and cast iron without changing high-speed drill bits or speed, what drill speed is preferred?
1. 50 fpm
 2. 70 fpm
 3. 100 fpm
 4. 150 fpm
- 2-63. The feed of a drill press is expressed in what values?
1. Centimeters per revolution
 2. Inches per minute
 3. Thousandths of an inch per minute
 4. Thousandths of an inch per revolution
- 2-64. Most of the twist drills you will use are made from what material?
1. Carbon steel
 2. High-carbon steel
 3. High-speed steel
 4. Cobalt
- 2-65. What is the approximate cutting speed of a 1-inch twist drill running at 100 rpm?
1. 23 fpm
 2. 26 fpm
 3. 30 fpm
 4. 36 fpm
- 2-66. You are getting ready to drill and you want to line up the center-punch mark on the workpiece exactly under the spindle. You will find it useful to follow what procedure?
1. Use a drill larger than the required size to make the lead hole
 2. Insert a dead center in the spindle socket
 3. Chisel a groove away from the punch mark
 4. Use a counterbore pilot to guide your drill to the punch mark
- 2-67. You can expect a 2-inch drilled hole to be oversized by what amount?
1. 0.006 in.
 2. 0.008 in.
 3. 0.010 in.
 4. 0.011 in.
- 2-68. Drilling with a twist drill that has cutting edges of different angles or unequal length will produce what condition?
1. A rough finish
 2. An oversized hole
 3. An undersized hole
 4. A warped workpiece
- 2-69. What type of shank is found on a reamer designed for use in a drill press or lathe?
1. Straight
 2. Tapered
 3. Fluted
 4. Splined
- 2-70. What is the rate of taper of a taper pin reamer?
1. 1 in. per foot
 2. 1/3 in. per foot
 3. 1/4 in. per foot
 4. 1/8 in. per foot
- 2-71. Which of these items is NOT used to make an angular hole by the Watts method?
1. A floating chuck
 2. A broach
 3. A guide plate
 4. A drill press